JOINT USERS RESOURCE ALLOCATION PLANNING (JURAP) MEETING

September 19, 2002

Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
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September 30, 2002
Refer to: 930-02-011-ESB:lc

TO: Distribution

FROM: Eugene S. Burke

SUBJECT: Minutes for the Joint Users Resource Allocation Planning Committee Meeting held September 19, 2002.

NEXT JURAP MEETING:
Thursday, October 17, 2002
JPL Bldg. 303, Room 411 – 1:00 p.m.

Attendees:

Andujo, A.	Eagles, D.	Lee, A.	Tay, P.
Baldwin, J.	Hall, J.	Martinez, K.	Tham, L.
Bartoo, R.	Hampton, E.	Martinez, K.	Valencia, J.
Buckley, J.	Kehrbaum, J.	Seal, D.	
Compton, B.	Kim, K.	Sierchio, M.	
Doody, D.	Lacey, N.	Slade, M.	

The Joint Users Resource Allocation Planning Committee meets monthly to review the status of Flight Projects, the requirements of other resource users, and to identify future requirements and outstanding conflicts. The last regular meeting was held on September 19, 2002 at the Jet Propulsion Laboratory.

Introductory Remarks / Conflict Resolutions – D. Morris
D. Morris chaired the meeting and welcomed the attending Mission representatives. G. Burke and many Project representatives were unable to attend the meeting due to a conference that is addressing the 2003-2004 high activity period.

SPECIAL REPORTS:

NEAR / CONTOUR – D. Morris (for R. Benson / A. Landon)
The CONTOUR spacecraft has not been acquired since August 15, following a solid rocket motor burn, despite numerous DSN search and Radio Science supports. It has been confirmed that the spacecraft is in at least 3 pieces. Almost all scheduled tracking supports have been cancelled except one pass on November 18, and a final four passes during the week of December 16. It is expected that this will conclude DSN support.

The NASA Mishap Investigation Board continues its investigation. The Radio Science and JPL Navigation teams are re-examining the results of their CONTOUR support.

An attempt to wake-up and reacquire NEAR as it rests on Eros is planned for December 10, 2002.

Cassini Flight Software Requirements – D. Seal
The reasoning behind the unexpected increase in requirements in 2003 support is due to the Flight Software Checkout planned in 2003. An apology was given on behalf of the Project for the disruption the increase would cause the network, as well for the unusually short notice.

Performing the Flight Software Checkout during the Cruise phase of the mission is necessary, otherwise the Tour would be delayed and this would disrupt the science objectives of the mission. The supports could be done at 34m antenna stations with X-band uplink and downlink capabilities, including DSS 26 (when it becomes operational), except during CDS Cruise, when the Project tests all new Telemetry modes with the spacecraft. Then, support will require a 70m antenna.

This is the last such software upgrade planned for the rest of the mission and such unexpected increase in support requirements should not occur again. All remaining tasks until the end of the mission should be able to be handled within the currently requested loading profile. All the remaining tasks have been performed previously, and it is well known how much support is required to perform them. The Project is prepared to provide a complete schedule of Tour support.

RARB Action Items – D. Morris
Action Item #1 is closed, all others remain open. Please see attached Action Item report.

Action Item #1: Investigate and Negotiate the feasibility of alternate assets providing current DSN Catalog Maintenance and Enhancement (CAT M&E) radio sources.

Response: CLOSED (9/19/02) The Reference Frame and Calibration Project reevaluated requirements that reduced scheduling constraints for acquiring sources. Therefore forecasted allocations should prove adequate with only some missed periods in 2003.

Resource Analysis Team – K. Kim
The following changes have been made to the DSN Mission set:

- End Of Extended Mission (EOEM) has changed to September 30, 2007 for VGR1, VGR2, WIND, SOHO, GTL, POLR, ACE, IMAGE, and Cluster.
- Lunar-A, Mars Reconnaissance Orbiter, Stereo Ahead and Stereo Behind have been recognized as Ongoing/Planned missions and have been moved from the Advanced planning list to the Ongoing/Planned Mission Set list.

The RAPSO Team has completed the MCD3 Study with the following studies ongoing:

- MADB/TIGRAS Testing and Training
- Downtime Replanning
- INTEGRAL Load Study
- LUNAR-A Load Study
- MESSENGER Load Study

The final August 2003 RARB Redbook v2.2 has been posted to the RAP website.

DSS Downtime Forecast – J. Valencia
The 2003, 2004 and 2005 downtime forecasts have been updated and posted to the RAP website, as well as a preview of the 2006 downtime forecast.

Many changes have been made to the downtime schedules as a result of the August 2002 RARB and weekly downtime meetings. Please see attached Downtime report for details.

J. Hall, of the Voyager project, expressed concern regarding the DSS 14 NSP Implementation downtime scheduled for May 2003, and requested that the period be revisited. J. Valencia cited that there were recommendations made and accepted by the Voyager project regarding the downtime and its impact on Voyager, in the April 2002 JURAP meeting.

D. Seal, of the Cassini program, did not object to the proposed DSS 63 Antenna Controller replacement scheduled in Weeks 45-53 in 2004, and stated that the Cassini Probe Release supports would have no need for 70m antenna support.

DSN Operations – J. Buckley
The DSN system availability is within normal constraints, noting a slight decrease from the previous month in Telemetry and Radio Science data, but an increase in Monitor data availability.

Goldstone Solar System Radar – M. Slade
The GSSR in conjunction with the Greenbank Telescope (GBT) is studying Mercury in preparation for the MESSENGER mission.

Radio Astronomy / Special Activities – G. Martinez
The only Clock Sync activity scheduled in August was cancelled due to CONTOUR emergency support, and therefore minimum requirements of 14 days between clock syncs were not met.

JURAP Science Advisor – E. Smith
There was no presentation given at this month's JURAP.

FLIGHT PROJECTS REPORTS

MAP, ACE, and IMAGE, Genesis – S. Waldherr
There was no presentation given at this month's JURAP.

Mars Global Surveyor – E. Brower
There was no presentation given at this month's JURAP, but presentation material is included in the Minutes.

Ulysses – B. Brymer
There was no presentation given at this month's JURAP.

Galileo – B. Compton
The Galileo spacecraft is healthy and continues to collect science data. Attempts to identify anomalies with the spacecrafts tape recorder have not revealed any problems. Tape recorder conditioning continues.

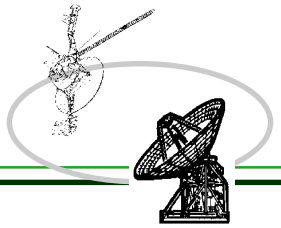
Stardust / Pioneer 10 - R. Ryan
There was no presentation given at this month's JURAP, but presentation material is included in the Minutes.

Chandra – K. Gage
There was no presentation given at this month's JURAP.

Voyager – J. Hall
The two Voyager spacecraft are healthy, and DSN support has been good despite 11 changes in support due to CONTOUR emergency support. Voyager 1 Real Time Light Time (RTLT) is approximately 23h 58m 11s, soon to reach the 24 hour RTLT milestone.

Cassini – D. Doody
The Cassini spacecraft is OK and the Probe Checkout #10 shows that the Probe is also healthy. DSN Support has been excellent.

ISTP, WIND, POLAR, SOHO, GEOTAIL, Cluster II – A. Chang
There was no presentation given at this month's JURAP.



Jet Propulsion Laboratory
California Institute of Technology

Joint Users Resource Allocation Planning Committee

SPECIAL REPORT

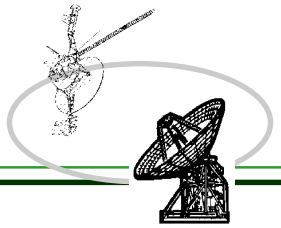
CONTOUR

Rich Benson

September 19, 2002

Jet Propulsion Laboratory
California Institute of Technology

CONTOUR STATUS



- **CONTOUR was not acquired following the solid rocket motor burn at 0147 PDT Thursday, 15 Aug. The heliocentric trajectory injection burn was in the blind - low over the Indian Ocean. CONTOUR was not acquired despite continuous DSN dual station searching and radio science support. Optical images confirm that the spacecraft is in at least 3 pieces.**

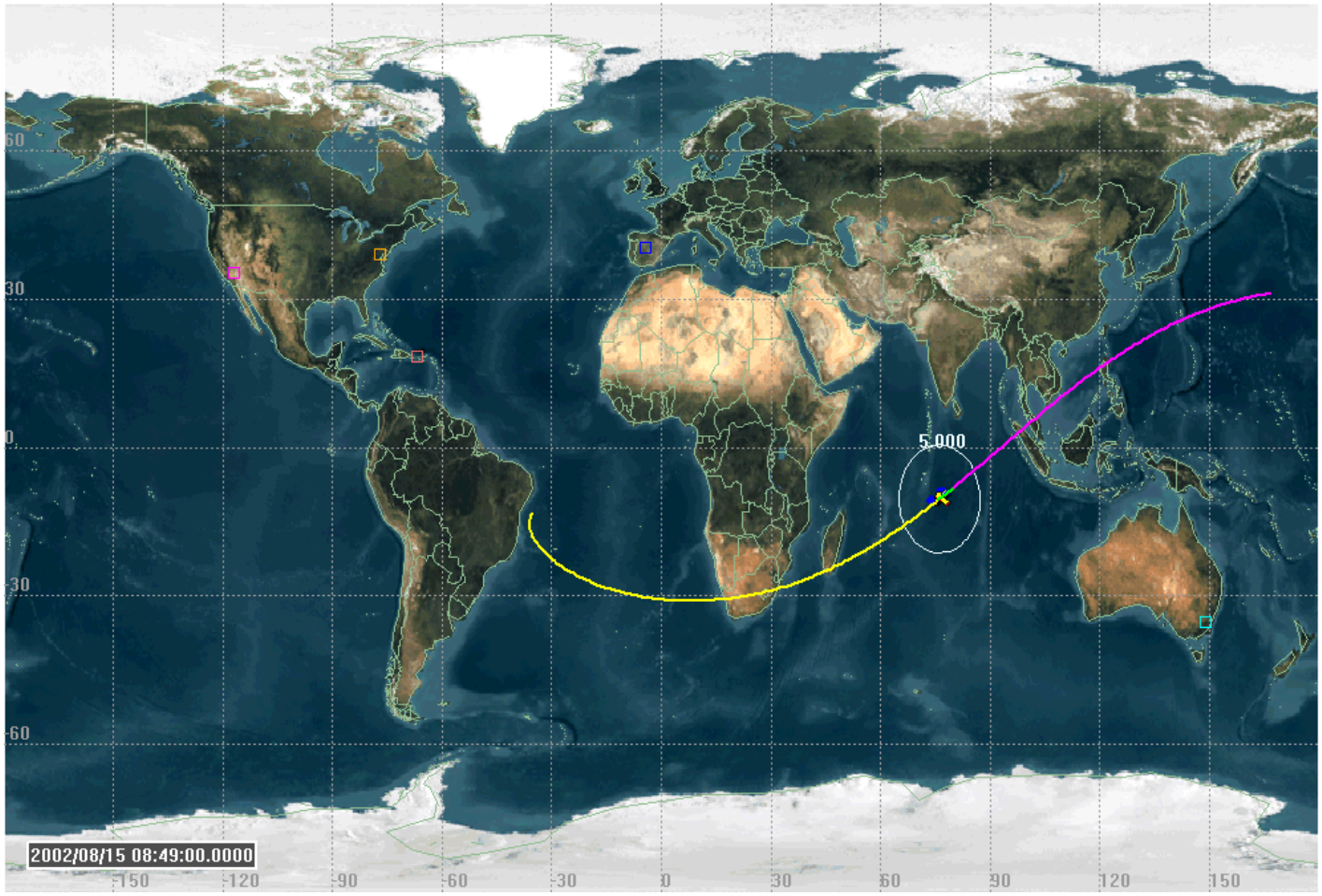
- **DSN tracking/searching has been cancelled except for DSS-65 pass on 18 Nov. A final search week of 16 Dec - four daytime passes, dual 70m & 34m, with radio science support, will conclude DSN support.**

- **See next viewgraph for SRM burn visibility**
  - **No X-band at Diego Garcia.**
  - **Also TWTA was off for this major propulsive event (like Mars Observer).**

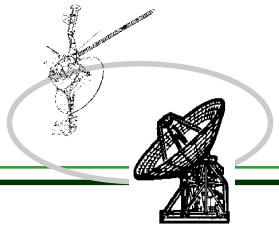
CONTOUR STATUS

Jet Propulsion Laboratory
California Institute of Technology

Contour Ground Trace
Showing 5-Degree Elevation from Ground
(SRM Burn in Green)

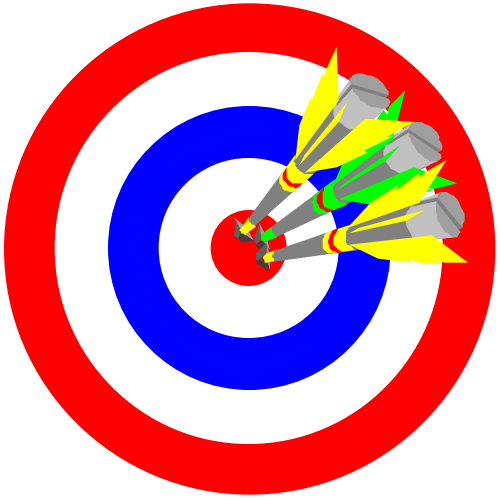


CONTOUR STATUS



- **The NASA Mishap Investigation Board for CONTOUR is especially asking about alternate assets that could have tracked the SRM burn - there were no X-band resources in view.**
  - **Jeff Umland (JPL Section 352) is a MIB member**
- **The Radio Science Team (Section 331) is reprocessing the recorded 1 kHz RSR data as part of DSMS' final report.**
- **JPL Navigation is analyzing range performance - about half of the non-coherent range acquisitions were invalid.**
  - **New Horizons, APL's Pluto mission with JPL Nav, plans same technique so n-c range performance (or pathology) needs to be understood.**
- **Possible happier note - an attempt to reacquire NEAR is planned at DSS-14 on 10 December**

CASSINI REQUESTS FOR EARLY 2003: FSW CHECKOUT & UPDATE REQUIREMENTS



D. SEAL

MISSION PLANNING OFFICE MANAGER

Background

- Cassini submitted major, unexpected upper in DSN requirements for early 2003
- New requirements reflect growth in FSW checkout not assessed in PSLA
  - tour capabilities have grown more complex, our understanding of complexity of FSW checkout has matured
- December 2001 PSLA
  - Spacecraft Office (SCO) identified FSW update for fall of 2002 to Mission Planning Office (MP)
  - SCO estimated ~ 3-4 passes (8h) per week
- June 2002 PSLA
  - FSW update pushed back to 2003 weeks 8-15
  - no update to DSN requirements was made
    - MP did not explicitly ask SCO to review PSLA requirements, SCO did not make MP aware of growth in FSW tasks
- July 2002
  - SCO tells MP that they expect to need 1 long (~10 h) pass per day to support FSW checkout

Background (con't)

- August - September 2002
  - MP works with SCO to define and scrub requirements
  - requirements reviewed by PM with mid-range DSN schedulers in attendance
  - requirements delivered to mid-range DSN schedulers
  - PSLA update initiated

- Cassini states mea culpa for not identifying the change internally early enough to bring to the attention of the RARB in a timely manner

COMPARISON OF PAST AND CURRENT C36 DSN COVERAGE REQUESTS

Number of Passes by Week of FSW Checkout

		1	2	3	4	5	6	7	8			Total
Original Plan	C35	C36								C37		
Dec 2001 PSLA	2	6	4	3	4	5	4	4	5	3	4	44
May 2002 ULP	2	5	4	3	4	5	4	4	7	3	4	45
Jun 2002 PSLA	2	6	4	3	4	5	4	4	5	3	4	44

	1	2	3	4	5	6	7	8	9	10	11	Total
Sep 2002 Replan	C36											
Sep 2002 Request*	2	5	5	5	5	5	5	5	5	5	5	52
Plus	0	1	1	1	1	1	1	1	1	1	1	10

*Most passes are 10 hours or longer; "plus" numbers are contingency/margin passes for monitoring

Hours of Coverage by Week of FSW Checkout

		1	2	3	4	5	6	7	8			Total
Original Plan	C35	C36								C37		
Dec 2001 PSLA	16	48	32	24	32	40	32	32	40	24	32	352
May 2002 ULP	16	40	32	24	32	40	32	32	56	24	32	360
Jun 2002 PSLA	16	48	32	24	32	40	32	32	40	24	32	352

	1	2	3	4	5	6	7	8	9	10	11	Total
Sep 2002 Replan	C36											
Sep 2002 Request*	16	50	62	54	50	58	56	50	50	46	48	540
Plus	0	8	8	8	8	8	8	8	8	8	8	80

FSW Checkout Specifics

- This is the final FSW upgrade for Cassini
  - includes bulk of more complex tour capabilities
- Two phases: attitude control (AACS) and command & data (CDS)
- About half of each phase checks out capabilities required to continue cruise safely
  - remainder is checkout of complex tour capabilities, some for critical sequences (SOI & Huygens Probe relay) that have not yet been flight tested (ITL testing insufficient)
- AACS cruise
  - uplink new software
  - parameter updates & readout
  - new AACS telemetry collection & routing
  - basic thruster and reaction wheel functionality tests
- AACS tour
  - suspend star tracking (when bright bodies are in FOV, etc.)
  - suspend attitude control (Huygens probe release)
  - constraint monitoring (protection of components from Sun-point)

FSW Checkout Specifics (con't)

- AACS tour (con't)
  - tracking of a rotating vector (for SOI, Huygens, rotating features, etc.)
  - vector updates, performance at high turn rates, redundant thruster & sun sensor tests

- CDS cruise
  - uplink & copy new software
  - power on & memory test SSR-A
  - test instrument performance
  - HGA response checkout
  - test all new telemetry modes
- CDS tour
  - dual record (Huygens probe mission)
  - optical navigation data routing & playback

FSW Checkout Timing

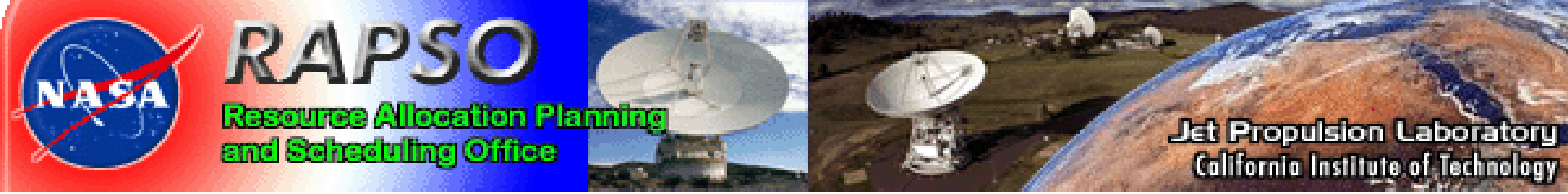
- FSW checkout to continue cruise is required
- Any delay in tour capability checkout has negative impacts
  - 1 year from tour by end of C36; getting very late to learn of problems in tour capabilities
  - since this is last FSW effort, developers will go to other projects
  - instrument calibration & checkout heavily packed into C37
    - C38 contains conjunction / is empty for other V&V activities
    - C39, C40, (no C41), C42, C43 are in contentious '03-'04 period

- Project realizes that we have "upset the apple cart"
- Instructions to mid-range DSN schedulers was "do the best you can, we'll live with what we get"
  - something between June 2002 PSLA and September 2002 upper
- Cassini scheduling should remain on a best-efforts basis

Potential for Future Problems

- What's in remainder of cruise that could grow?
  - conjunction, GWE: no, requirements are solid
  - PSLA 2 passes/week after '03 conjunction, but before '03 GWE and '03-'04 crunch is same as outer cruise to date
  - after crunch, we go to 1 pass/day until tour for approach science
    - approach cannot be more intensive then tour itself; limited both by ground resources and manageable data volumes of calibrations, instrument checkouts, and maintenance

- How does tour look?
  - PSLA says 1 pass/day
  - 2 tour sequences "on the shelf": 75 days, 73 passes (4 are arrays, so maybe this is 77 passes total)
  - 1/3 tour integrated, but not fully implemented yet: ≤ 1 pass / day
  - remainder of tour not yet integrated: 1 pass / day in strawman database
  - in many cases, science teams ask to skip passes (!) to make room for more opportunities (at lesser data volumes)

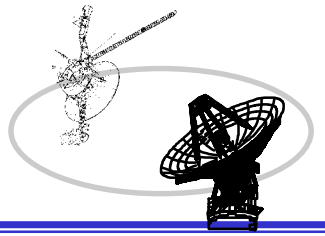


Joint Users Resource Allocation Planning (JURAP) Meeting

September 19, 2002

Action Item Status
From August 13, 2002 RARB
(Resource Allocation Review Board)

David G. Morris



Action Item Summary

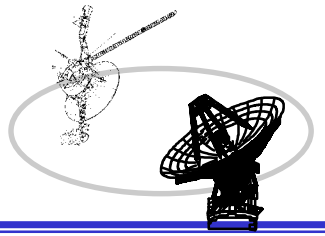
AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
01	**2003**	**Jan-Dec**	**DSMS P & C**	**R. Miller**	**9/19/2002**	**Closed**

ACTION: Investigate and Negotiate the feasibility of alternate assets providing current DSN Catalog Maintenance and Enhancement (CAT M&E) radio sources.

RESPONSE: (9/19/02) The Reference Frame and Calibration Project reevaluated requirements which reduced scheduling constraints for acquiring sources. Therefore forecasted allocations should prove adequate with only some missed periods in 2003.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
02			**DSMS Engineering**	**J. Statman**	**9/19/2002**	**Open**

ACTION: Provide date when 810-5 will be updated with revised G/T values based upon new X/X/Ka feeds on the 34m BWG. (Reference page 28 of DSMS Engineering presentation.)



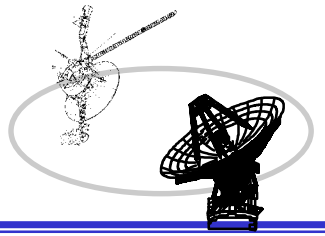
Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
03	**2003**	**July-August**	**GSSR & Mars Program Ofc**	**A. Haldeman C. Edwards**	**11/11/2002**	**Open**

ACTION: Investigate and negotiate the conflicting requirements for GSSR-Mars Landing Survey vs. ongoing Mars Program spacecraft support.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
04	**2003**	**October**	**SGP**	**P. Wolken**	**9/19/2002**	**Open**

ACTION: Consult with the Project for a decision regarding all SGP recommendations made by RAPSO and provide RARB Representative authority to negotiate recommendations that reduce SGP support.



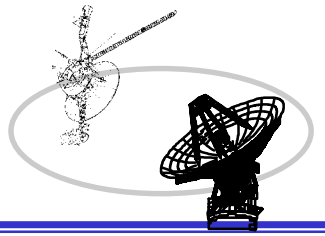
Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
05	**2003**	**December**	**NASA HQ Code S**	**B. Geldzahler**	**10/17/2002**	**Open**

ACTION: Coordinate NASA Code Y to NOAA support for GOES N to be outside the 2003 – 2004 High Activity period. R. Skidmore states that the GOES-N Project is aware of the contentions and GSFC representatives will work with the Project for a decision to resolve the issues.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
06	**2003-2004**	**December-April**	**DSMS Plans & Commit Ofc and Mars Program**	**R. Miller** **C. Edwards**	**10/11/2002**	**Open**

ACTION: Develop planning envelope for Mars Program to plan their critical support within. This is to preserve and assure other missions' committed support throughout this period as well as needed DSS Maintenance as presently defined.



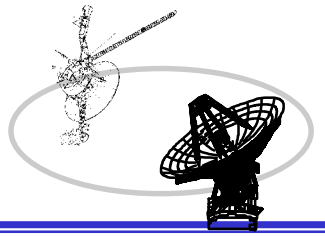
Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
07	**2003-2004**	**December-April**	**Mars Program**	**B. Arroyo**	**06/01/2003**	**Open**

ACTION: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan to.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
08	**2005**	**April-June**	**RAPSO**	**N. Lacey**	**10/17/2002**	**Open**

ACTION: Coordinate new plan for DSS-63 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
09	**2005**	**July**	**RAPSO**	**N. Lacey**	**10/17/2002**	**Open**

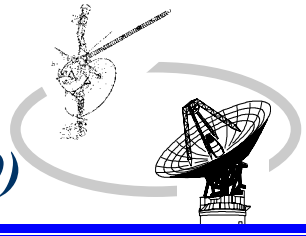
ACTION: Coordinate new plan for DSS-43 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

Resource Analysis Team

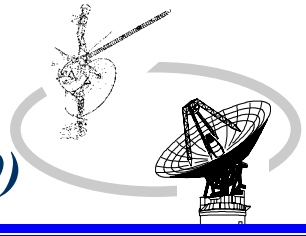
September 19, 2002

Kevin Kim

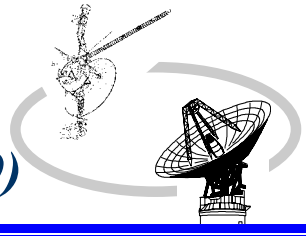


◆ RESOURCE NEGOTIATION STATUS

- 2002 WEEKS 45 – 48 (THRU 12/01/2002) WAS RELEASED TO DSN ON 09/16/2002
- 2002 WEEKS 15 – 18 (THRU 05/05/2003) IS DUE TO BE RELEASED ON 09/20/2002
- 2003 WEEKS 19 – 22 (THRU 06/02/2003) WILL GO INTO NEGOTIATIONS STARTING 10/11/2002

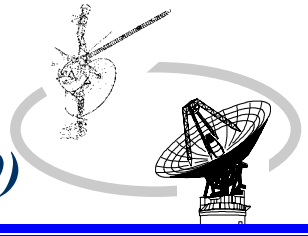


- **SPECIAL STUDIES/ACTIVITIES**
  - MCD3 STUDY
- **ON-GOING ACTIVITIES**
  - MADB/TIGRAS TESTING AND TRAINING
  - DOWNTIME REPLANNING
  - INTEGRAL LOAD STUDY
  - LUNAR-A LOAD STUDY
  - MESSENGER LOAD STUDY



- **RARB – AUGUST 13, 2002**
  - FINAL REDBOOK v2.2 posted on RAPWEB
  - PREPARING TIMELINE FOR FEBRUARY 11, 2002

HTTP://RAPWEB.JPL.NASA.GOV



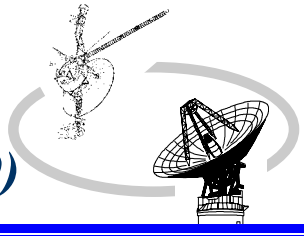
DSN Resource Implementation Planning Matrix

Station	Subnet	Delivery Date	S-Band Down	S-Band Up	X-Band Down	X-Band Up	20kW X-Band	Ka-Band Down	Ka-Band Up	NSP
DSS-14	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	05/13/03
DSS-15	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	04/10/03
DSS-16	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-24	34B1	XXXX	XXXX	XXXX	XXXX	12/23/02	12/23/02	10/01/05	N/A	12/23/02
DSS-25	34B2	XXXX	N/A	N/A	XXXX	XXXX	09/01/03	XXXX	XXXX	03/10/03
DSS-26	34B2	04/02/03	N/A	N/A	04/02/03	04/02/03	04/02/03	04/02/03	N/A	04/02/03
DSS-27	34HSB	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-34	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	04/07/03	01/01/05	N/A	04/07/03
DSS-43	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	02/10/03
DSS-45	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	05/03/03
DSS-46	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-54	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	09/01/03	08/01/06	N/A	05/13/03
DSS-55	34B2	11/01/03	N/A	N/A	11/01/03	11/01/03	11/01/03	11/01/03	N/A	11/01/03
DSS-63	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	04/21/03
DSS-65	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	02/10/03
DSS-66	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A

XXXX = Capability Currently Exists

N/A = Capability Not Planned

09/19/02

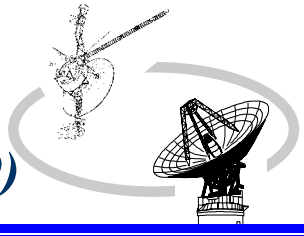


DSN User / Mission Planning Set
2002 - 2012

ONGOING/PLANNED PROJECTS				
Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
European VLBI Network	EVN	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Reference Frame Calibration	DSN	--	--	--
Space Geodesy	SGP	--	--	--
Pioneer 10 ACS	PN10	03/03/72	07/01/97	09/30/08
Voyager 2	VGR2	08/20/77	10/15/89	09/30/07
Voyager 1	VGR1	09/05/77	12/31/80	09/30/07
Goldstone Solar System Radar	GSSR	04/01/85	--	--
Galileo	GLLO	10/18/89	12/07/97	09/21/03
Ulysses	ULYS	10/06/90	09/11/95	09/30/04
ISTP - Geotail	GTL	07/24/92	07/24/95	09/30/07
ISTP - Wind	WIND	11/01/94	11/01/97	09/30/07
ISTP - SOHO	SOHO	12/02/95	05/02/98	09/30/07
ISTP - Polar	POLR	02/22/96	08/23/97	09/30/07
Gravity Probe B	GPB	06/01/96	01/01/05	TBD
Mars Global Surveyor	MGS	11/07/96	02/01/01	06/01/04
Advance Composition Explorer	ACE	08/25/97	02/01/01	09/30/07
Cassini	CAS	10/15/97	06/30/08	06/30/10
Nozomi (Planet-B)	NOZO	07/03/98	12/31/05	TBD
Stardust	SDU	02/07/99	01/14/06	- - -
Chandra X-ray Observatory	CHDR	07/23/99	07/24/09	07/24/14
Imager for Magnetopause-to-Aurora Global Exploration	IMAG	03/25/00	05/30/02	09/30/07
Cluster 2 - S/C #2 (Samba)	CLU2	07/16/00	02/15/03	09/30/07
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/30/07
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/30/07
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/30/07

DSN User / Mission Planning Set
2002 - 2012

ONGOING/PLANNED PROJECTS				
Project	Acronym	Launch or Start	EOPM	EOEM
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/30/07
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/30/07
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/30/07
2001 Mars Odyssey	M01O	04/07/01	08/01/04	09/19/07
Microwave Anisotropy Probe	MAP	06/30/01	10/01/03	10/01/06
Genesis	GNS	08/08/01	09/08/04	- - -
Mission Enhancement by Ground-based Astronomy	MEGA	02/01/02	12/31/03	- - -
Comet Nucleus Tour (CONTOUR)	CNTR	07/03/02	09/05/08	TBD
International Gamma Ray Astrophysics Lab	INTG	10/17/02	12/18/04	12/18/07
MUSES - C	MUSC	12/01/02	06/05/07	- - -
Space Infrared Telescope Facility	STF	01/09/03	04/19/08	- - -
Rosetta	ROSE	01/13/03	07/10/13	- - -
Mars Express Orbiter	MEX	05/23/03	02/11/06	08/03/08
Mars Exploration Rover - A	MERA	05/30/03	04/06/04	05/11/04
Mars Exploration Rover - B	MERB	06/25/03	04/27/04	06/15/04
Lunar - A	LUNA	08/09/03	07/18/04	- - -
Deep Impact	DIF	01/02/04	08/05/05	- - -
Messenger	MSGR	03/10/04	04/06/10	- - -
Space Technology 5	ST5	07/15/04	10/15/04	TBD
Mars Reconnaissance Orbiter	MRO	08/08/05	11/26/08	12/31/10
Stereo Ahead	STA	11/15/05	02/18/08	- - -
Stereo Behind	STB	11/15/05	02/18/08	- - -



ADVANCED PLANNING PROJECTS

Project	Acronym	Launch or Start	EOPM	EOEM
Selene	SELN	07/04/05	09/30/06	- - -
Dawn	DAWN	05/27/06	07/26/15	TBD
Kepler	KPLR	10/15/06	10/14/10	TBD
Mars Competed Scout 2007	M07S	09/04/07	08/19/08	TBD
Mars CNES Premier Orbiter 2007	M07O	09/11/07	08/11/08	08/12/10
Mars ASI/NASA Marconi Telecommunications Orbiter 2007	M07T	08/23/07	07/18/18	TBD
Mars ASI/NASA Science Orbiter 2009	M09O	10/04/09	08/29/12	TBD
Mars Smart Lander 2009	M09L	10/25/09	08/09/13	TBD
Solar Probe	SOLP	05/01/10	02/14/14	TBD
Highly Advanced Laboratory for Communications and Astronomy	VSP2	06/15/10	06/15/15	- - -
Mars CNES MSR Lander 2011	M11L	10/30/11	09/10/14	TBD
Mars CNES MSR Orbiter 2011	M11O	10/30/11	07/22/14	TBD

DSN Antenna Downtime Status and Forecast

Jose Valencia

September 19, 2002

Major Antenna Downtimes

MAJOR DSN DOWNTIMES by SITE by Year								
Year	Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
2002	DSS 14	70M Servo Drive Replacement	07/15/02	09/27/02	75	29-39	196	270
2002	DSS 24	NIB - NSP Implementation	10/21/02	12/02/02	43	43-49	294	336
2002	DSS 24	20 KW X-Band TXR Installation	10/21/02	12/22/02	63	43-51	294	356
2002	DSS 24	NIB - KA-Band Encoder (Mechanical)	10/21/02	11/09/02	20	43-45	294	313
2002	DSS 24	NIB - CCG Task	10/21/02	10/27/02	7	43-43	294	300
2002	DSS 43	70M Servo Drive Replacement	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	NIB - Ball-Joint Pad Refurbishment	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	Hydrostatic Bearing Regrout	11/17/02	11/24/02	8	46-47	321	328
2002	DSS 45	DSS 45 HVAC Upgrade	10/01/02	10/08/02	8	40-41	274	281
2002	DSS 45	NIB - Painting Maintenance	10/01/02	10/08/02	8	40-41	274	281
2002	DSS 54	Azimuth Axle Replacement	10/01/02	10/20/02	20	40-42	274	293
2002	DSS 54	NIB - CCG task	10/01/02	10/07/02	7	40-41	274	280
2003	DSS 14	NSP Implementation	04/21/03	05/12/03	22	17-20	111	132
2003	DSS 15	NSP Implementation	03/10/03	04/09/03	31	11-15	069	099
2003	DSS 16	Servo Drive Replacement	07/14/03	08/03/03	21	29-31	195	215
2003	DSS 25	NSP Implementation	02/10/03	03/09/03	28	07-10	041	068
2003	DSS 25	20Kwatt X-Band TXR	08/04/03	09/14/03	42	32-37	216	257
2003	DSS 34	NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 34	NIB - 20 KW X-Band TXR Installation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 34	NIB - KA-Band Encoder (Mechanical)	02/10/03	03/02/03	21	07-09	041	061
2003	DSS 34	NIB - Azimuth Axle Replacement	02/10/03	03/02/03	21	07-09	041	061
2003	DSS 34	NIB - CCG Task	02/10/03	02/16/03	7	07-07	041	047
2003	DSS 34	NIB - Painting Maintenance	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 43	NIB - NSP Implementation	01/02/03	02/09/03	39	01-06	002	040
2003	DSS 45	NSP Implementation	04/07/03	05/02/03	26	15-18	097	122
2003	DSS 45	NIB - Painting Maintenance	04/07/03	05/02/03	26	15-18	097	122
2003	DSS 54	NIB - KA Band Encoder (Mechanical)	07/21/03	09/07/03	49	30-36	202	250
2003	DSS 54	20 KW X-Band TXR Installation	07/21/03	09/07/03	49	30-36	202	250
2003	DSS 54	NSP Implementation	04/21/03	05/12/03	22	17-20	111	132
2003	DSS 63	70M Servo Drive Replacement	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - Ball-Joint Pad Refurbishment	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 63	NIB - Bearing Regrout	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 65	NSP Implementation	01/07/03	02/09/03	34	02-06	007	040
2003	DSS 66	Servo Drive Replacement	09/15/03	10/26/03	42	38-43	258	299
2004	DSS 14	Antenna Controller Replacement	07/07/04	10/03/04	89	28-40	189	277
2004	DSS 15	Antenna Controller Replacement	04/12/04	06/13/04	63	16-24	103	165
2004	DSS 46	Servo Drive Replacement	04/12/04	05/23/04	42	16-21	103	144
2005	DSS 65	Antenna Controller Replacement	02/21/05	04/10/05	49	08-14	052	100

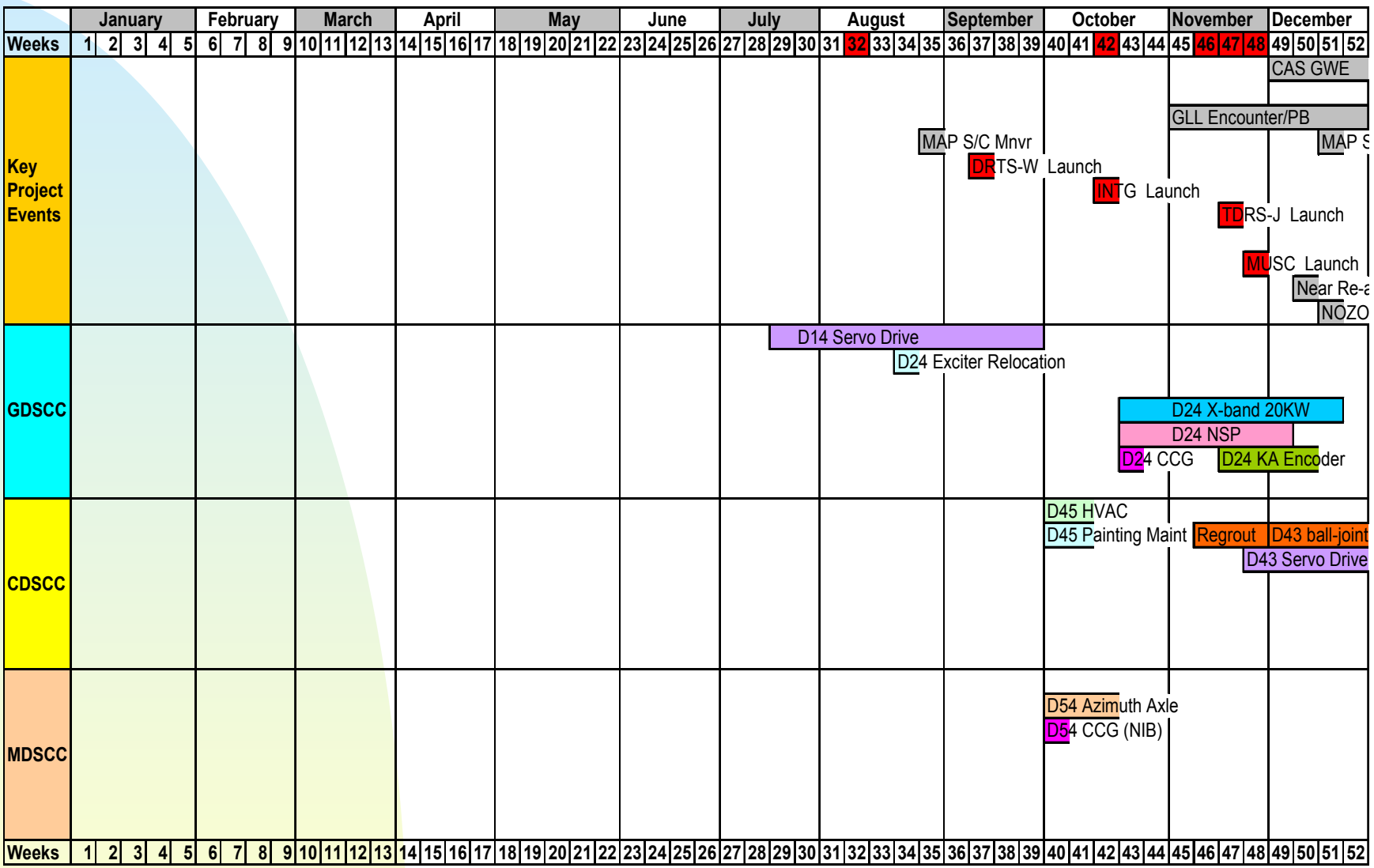
ANTENNA DOWNTIME STATUS

- 2002
  - No additions or changes to antenna downtimes
  - DSS-24 Exciter Relocation task was completed on time
  - DSS-14 downtime for Servo Drive Upgrade is proceeding as scheduled with a return to service date end of week 39
- 2003
  - DSS-25 proposed X-Band 20Kw downtime was approved by RARB agreement in August 2002
  - DSS-16, and DSS-66 proposed Servo Drive was approved by RARB agreement in August 2002
- 2004
  - DSS-63 proposed Antenna Controller Replacement (ACR) downtime was moved from 2005
  - DSS-46 proposed Servo Drive downtime was approved by RARB agreement in August 2002

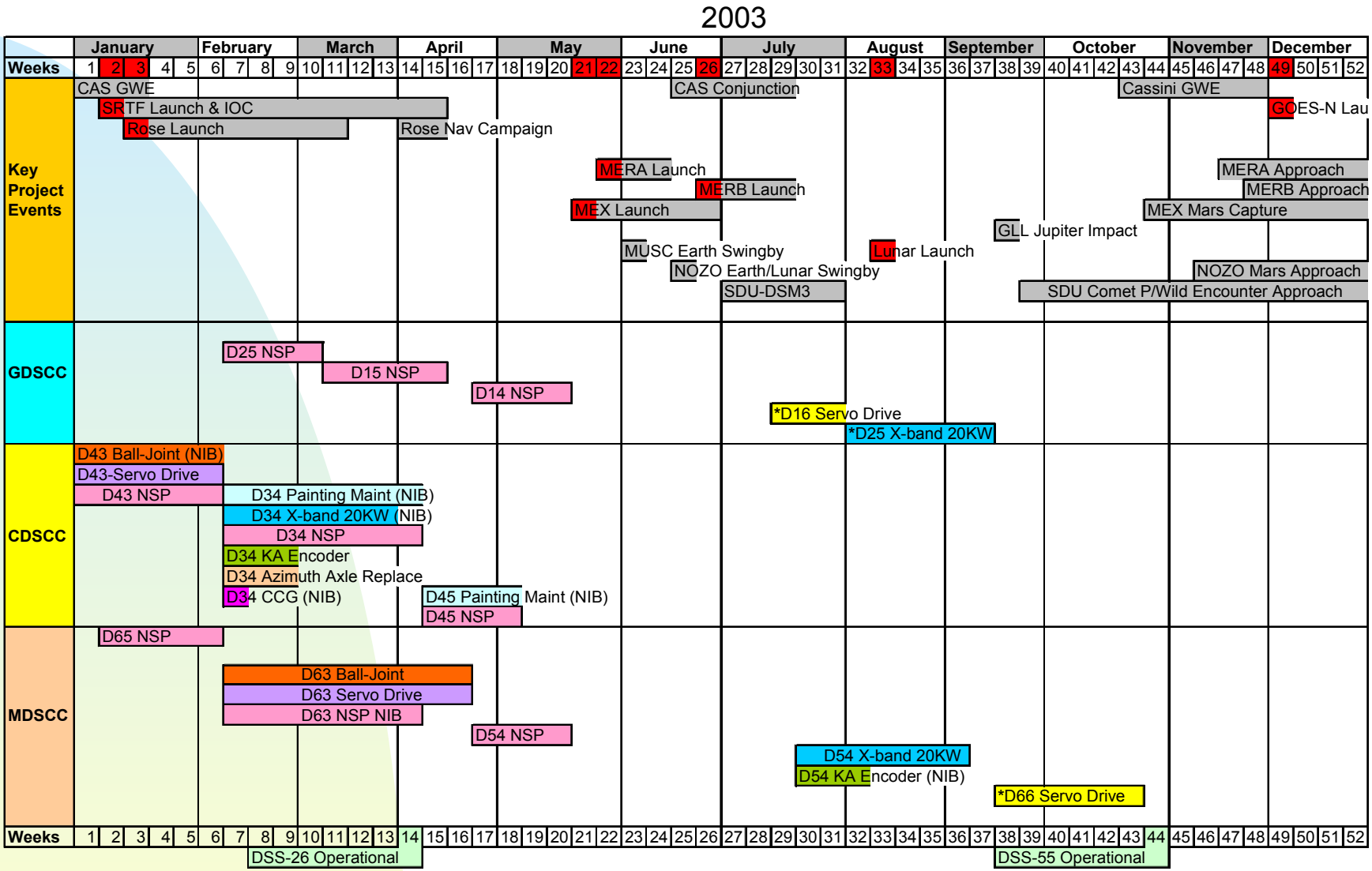
ANTENNA DOWNTIME STATUS (continued)

- 2004
  - DSS-15 proposed ACR downtime was approved by RARB agreement in August 2002
  - DSS-24 approved X/X Ka-band antenna downtime was withdrawn post RARB and the support time returned to Cluster, CHDR, MEx, Rosetta, and Wind
- 2005
  - DSS-34 proposed X/X Ka-band downtime was moved from 2004 to resolve conflict with Genesis backup orbit Earth return support
  - DSS-65 proposed ACR downtime was approved by RARB agreement in August 2002
- 2006
  - DSS-24 proposed X/X Ka-Band Antenna Downtime moved from 2005

Antenna Downtimes and Proposed Changes in 2002

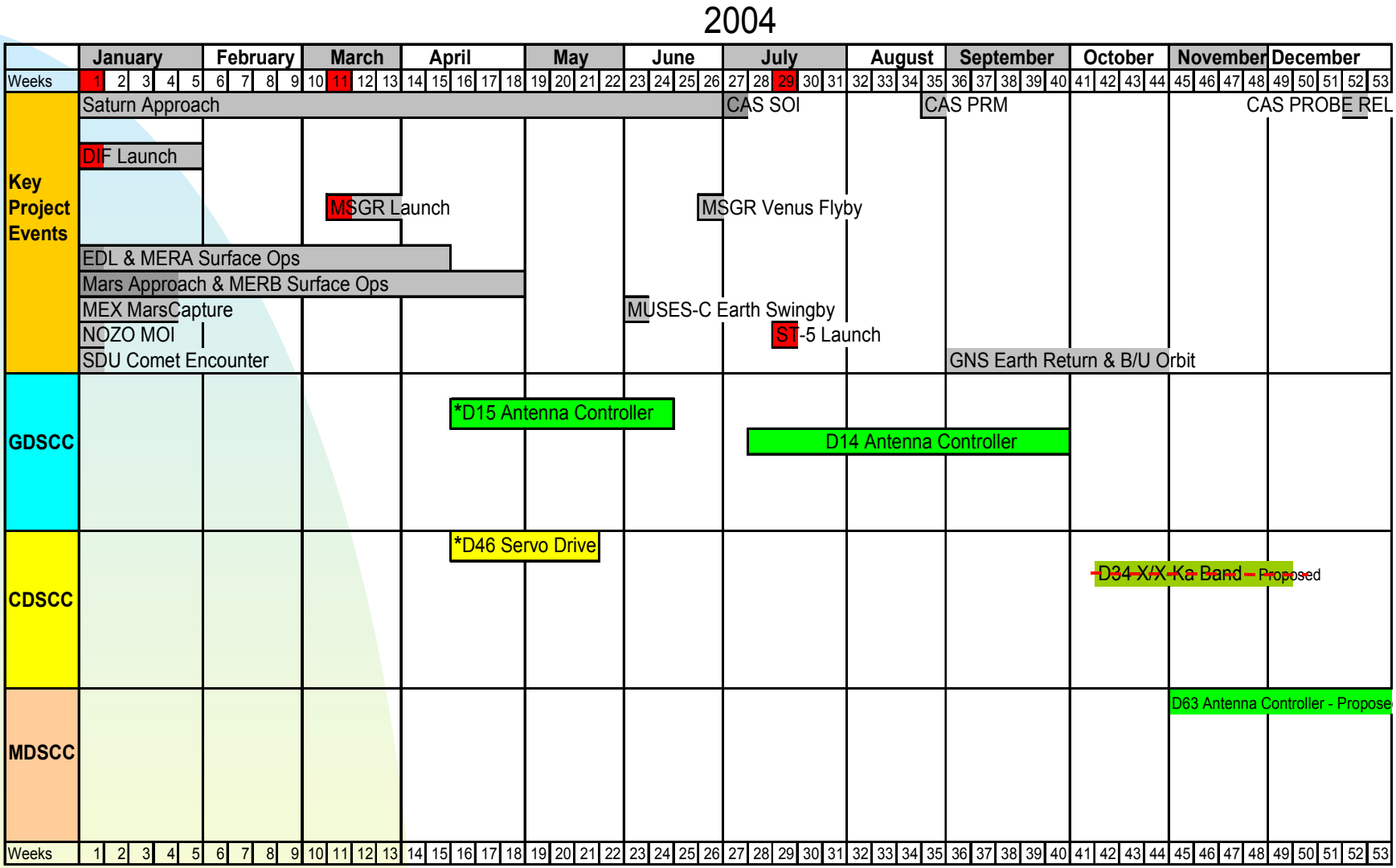


Antenna Downtimes and Proposed Changes in 2003



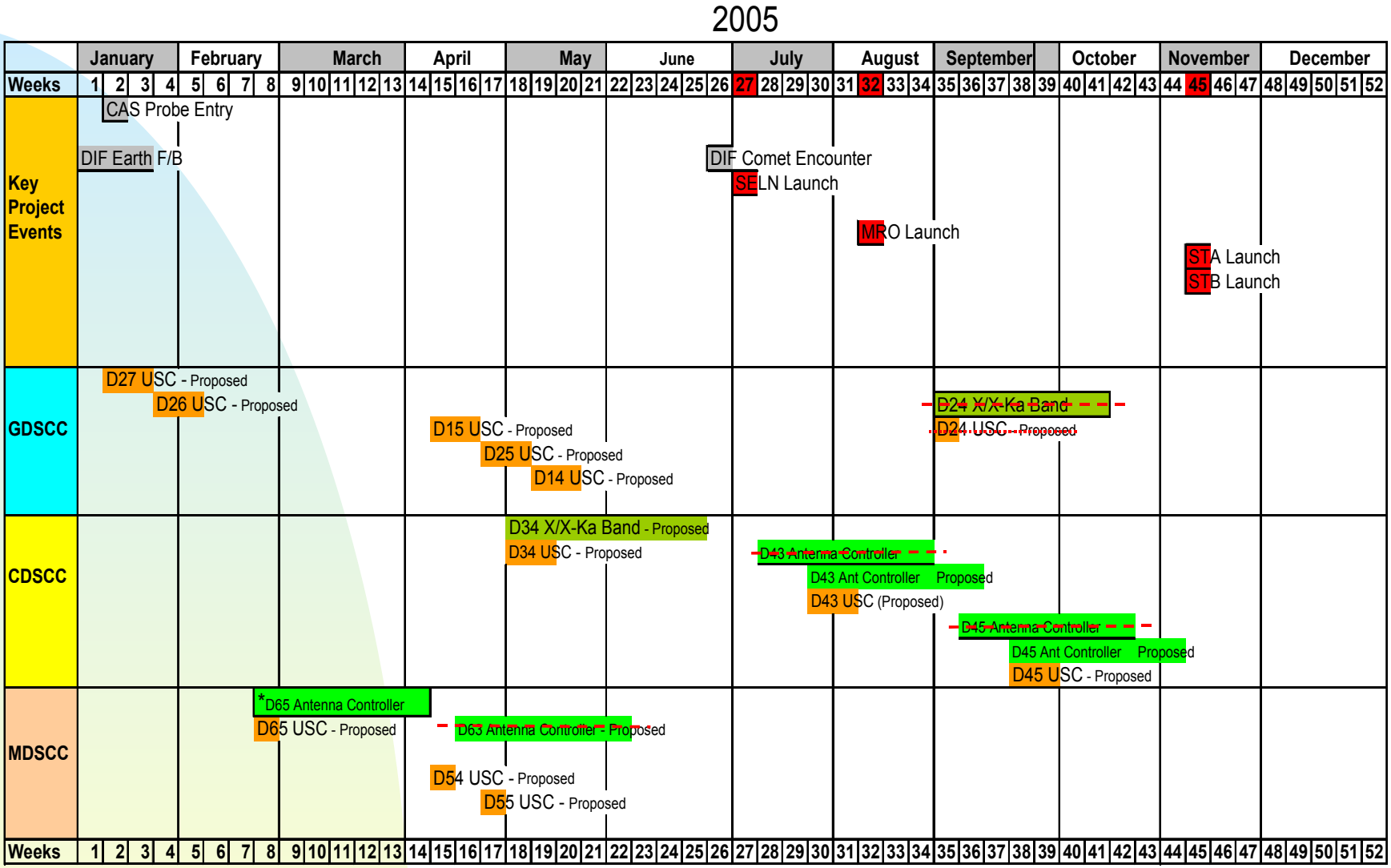
* Status changed from "Proposed" to "Approved"

Antenna Downtimes and Proposed Changes in 2004



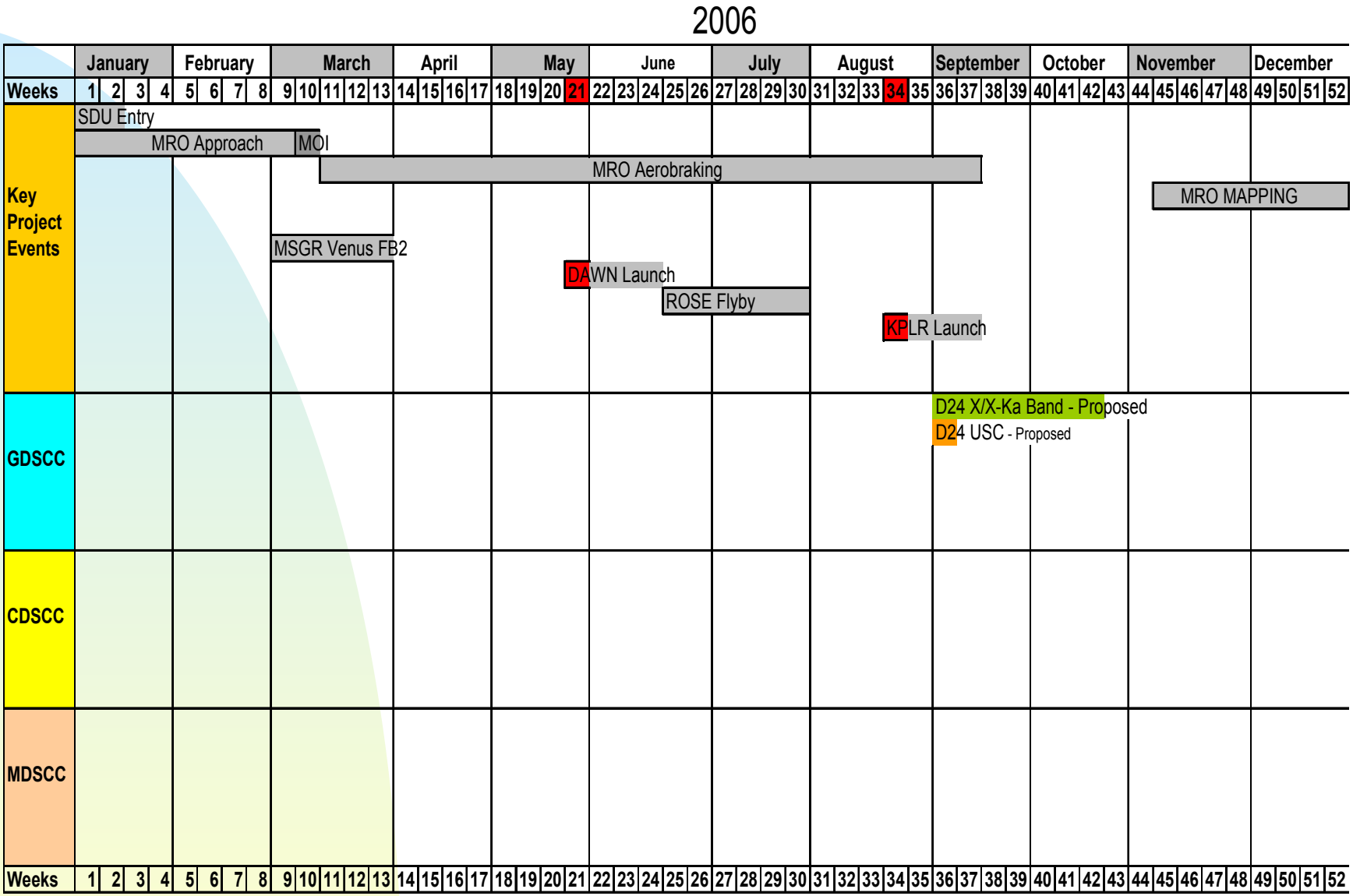
*Status Change From "Proposed" to "Approved"

Antenna Downtimes and Proposed Changes in 2005



*Status Changed from "Proposed" to "Approved"

Antenna Downtimes and Proposed Changes in 2006



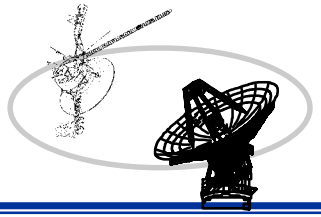
DSN Operations

Jim Buckley

September 19, 2002

NASA Jet Propulsion Laboratory

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE



DSN System Availability

Data Type	July 2002	August 2002
Telemetry	99.2%	98.79%
Tracking	98.73%	98.34%
Command	98.59%	98.32%
Monitor	97.40%	99.31%
Radio Science	99.97%	98.84%
VLBI	96.26%	99.74%

Goldstone Solar System Radar

Martin A. Slade

Sept 19, 2002

NASA Jet Propulsion Laboratory

Joint Users Resource Allocation Planning Committee Meeting

Goldstone Solar System Radar (GSSR)

GOAL: GSSR/GBT observations supply parameters needed by MESSENGER to determine fluid core radius. Mercury spin state: Preliminary results from paper in preparation to *Nature.*

IAU Pole Location

GSSR/GBT Obliquity Determination +

QuickTime™ and a
GIF decompressor
are needed to see this picture.

1, 2, 3-sigma contours

Radio Astronomy

&

Special Activities

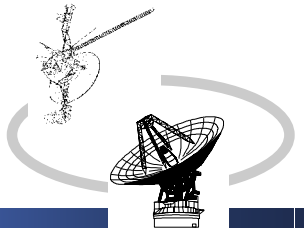
September 19, 2002

George Martinez

TEMPO
(Time and Earth Motion Precision Observations)

- Clock Sync
  - DOY 222
    - The only clock sync scheduled for August.
      - Project requirements for a clock sync every 14 days were not met.
    - Cancelled due to Contour emergency.
      - DSS-15 was used in the search for Contour.
      - DSS-65 was released to the network.
  - No clock sync data collected for August.

Space Geodesy Program (SGP)



- **IVS-CRF-14**
  - **These are astrometric observations to strengthen the international celestial reference frame (ICRF) in the Southern Hemisphere by observing ICRF defining and candidate sources.**
  - **No problems were reported by DSS-45.**
  - **Data tapes sent to Bonn Correlator.**
- **IVS-T2006**
  - **The objective of the IVS-T2 sessions is to monitor the Terrestrial Reference Frame (TRF) via monthly sessions. All geodetic stations participate in at least three T2 sessions each year. These sessions replace the IRIS-S sessions observed in previous years.**
  - **No problems were reported by DSS-45.**
  - **Data tapes sent to Bonn Correlator.**
- **Metrics**
  - **100% of data time utilized.**

Mars Global Surveyor
Flight Operations Status

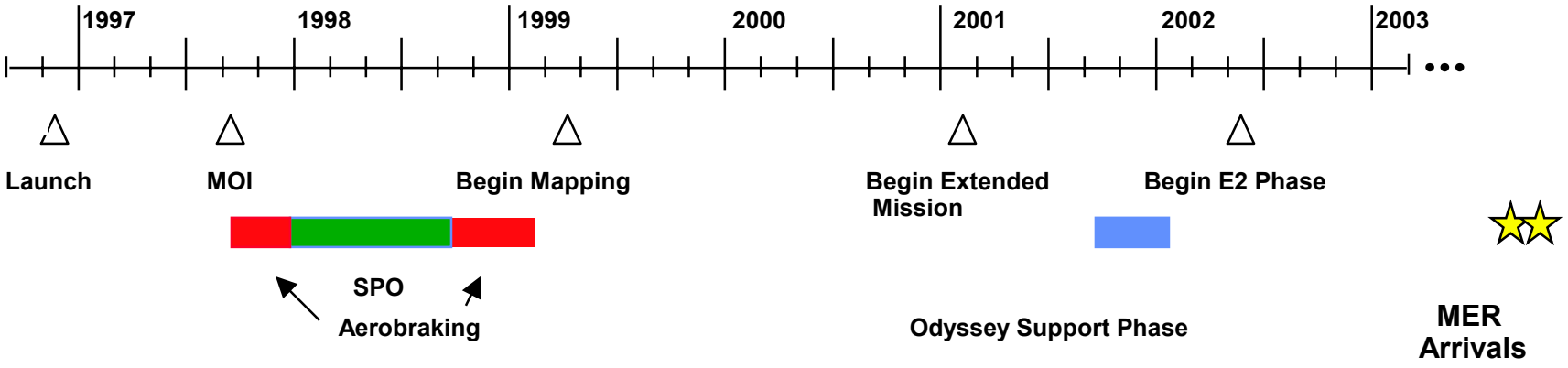
E.E. Brower

September 19, 2002

AGENDA

- Project Snapshot
- Recent Events/Accomplishments
- Mission Assessment
- Comments

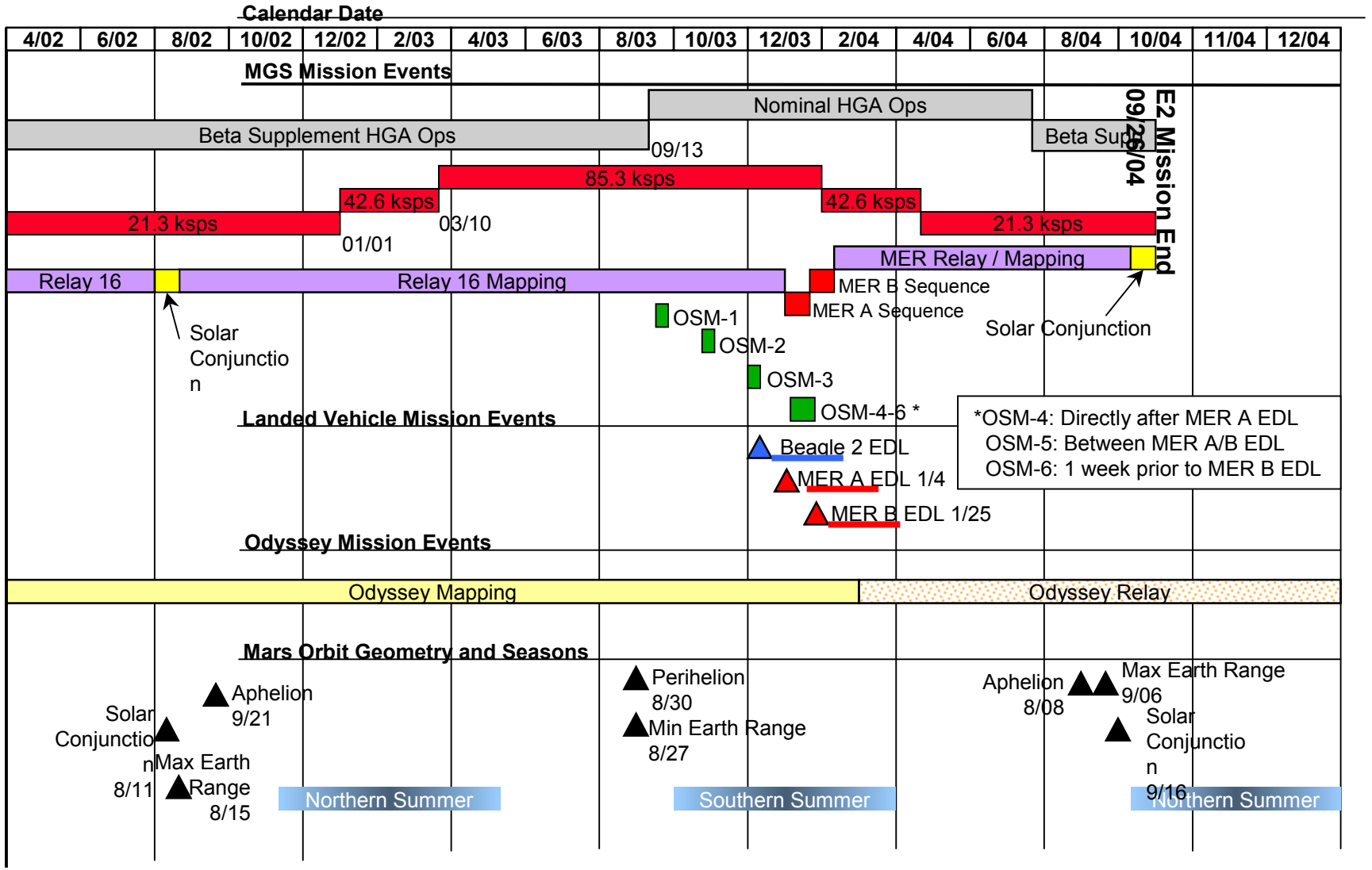
Mars Global Surveyor
Project Snapshot



PHASE NAME	START DATE	END DATE	ORBITS	ORBITE
PRELAUNCH PHASE	**1994-10-12**	**1996-11-06**		
LAUNCH PHASE	**1996-11-06**	**1996-11-07**		
CRUISE PHASE	**1996-11-07**	**1997-09-12**		
INSERTION PHASE	**1997-09-12**	**1999-03-09**	**1**	**1683**
MAPPING PHASE(687DAYS)	**1999-03-09**	**2001-01-31**	**1**	**8505**
EXTENDED MISSION PHASE	**2001-02-01**	**2002-04-22**	**8506**	**13960**
EXTENDED EXTENDED (E2)	**2002-04-22**	**2004-08-19**	**13961**	**29416**

MGS

Mars Global Surveyor
E2 Mission Timeline



MGS

Events

- Last 3 Months:
  - **PSG/MMR** — **JUL 9-10**
  - **NSP Ranging demonstration** — **JUL 16**
  - **Flex mode check** — **JUL 17**
  - **Solar Conjunction** — **Aug 5 - 15**
  - **2nd Flex Mode Check** — **Aug 19**
  - **NSP Engineering Test** — **Aug 30**

- Next 12 Months:
  - **Aphelion** — **Sept 21**
  - **Radio Science Egress Exp.** — **Sept 30 - Oct 1**
  - **NSP PIT Test** — **Sept 23**
  - **MGS MMR** — **Sept 24**
  - **Radio Science Egress Exp.#2** — **Oct 28 - 30**
  - **Medium data rate** — **JAN 1, 2003**
  - **MER Launches** — **MAY 30, JUN 24**

- **Successfully Patch FSW for TES Equator Crossing broadcast @ Relay 16**

- **Nadir dwell strategy was implemented to minimize the frequency of momentum unloads.**

- **Spacecraft is in good health.**
- **Expect to fulfill most extended mission objectives (complete MER site coverage may become E2 mission objective).**
- **Expect to satisfy MER EDL Requirements.**
- **Chances of operation through 2004 are good.**

Comments

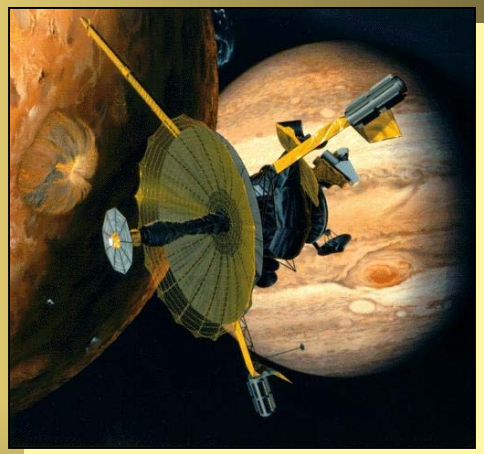
- **None**

Galileo
Journey to Jupiter

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

Brad Compton

June 20, 2002



NASA / Jet Propulsion Laboratory

http://galileo.jpl.nasa.gov/

GALILEO MILLENIUM MISSION

ROUTINE ACTIVITIES

- Propulsion maintenance
- Attitude maintenance turn
- Science instrument MROs

GALILEO MILLENIUM MISSION

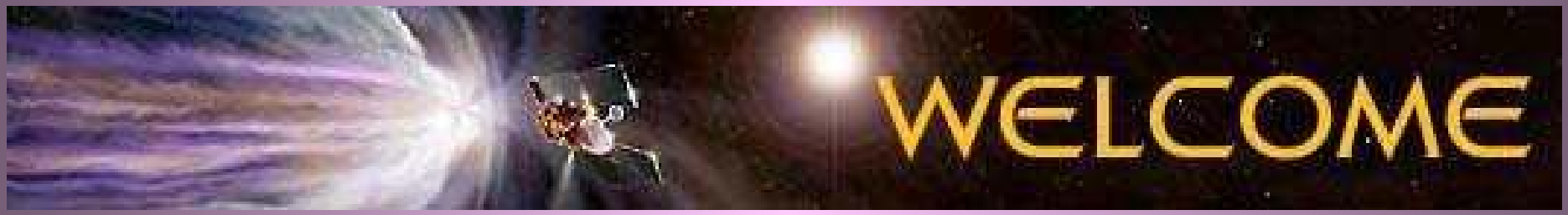
SIGNIFICANT EVENTS

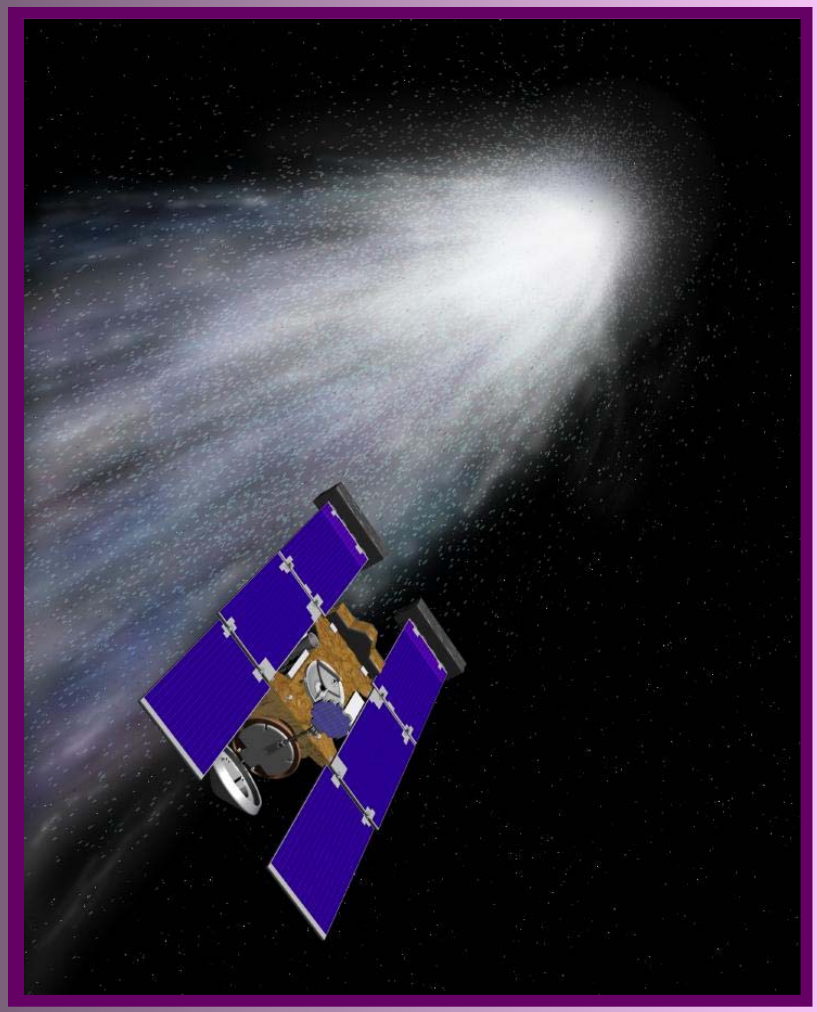
- Exited solar conjunction (7/28/02).
- Continued collecting Magnetometer, Dust Detector and Extreme Ultraviolet data.
- A number of mini-sequences have been executed to characterize the tape recorder anomaly, each slewing the tape at successively longer and higher rates. No evidence of sticking has been observed.

GALILEO MILLENIUM MISSION

PROJECT PLANS

- Continue tape recorder characterization/conditioning.
- Continue collecting MAG, DDS and EUV data.
- Execute Orbit Trim Maneuver 108.
- Continue routine activities.
- Next encounter Amalthea 34 on 5 November.





STARDUST

JOINT USERS
RESOURCE ALLOCATION
PLANNING COMMITTEE

R. E. Ryan

September 19, 2002

NASA Jet Propulsion Laboratory

http://stardust.jpl.nasa.gov

STATUS

SPACECRAFT IS HEALTHY (9/19/02)

PRESENTLY 1.81 AU from EARTH

00:30:03 RTLT

2.49 AU from SUN

SPACECRAFT IS IN CRUISE

- **BIT RATE IS AT 1050 bps (on HGA/34 HEF)**
- **EARTH RANGE IS INCREASING**
  - **S/C COMING BACK IN BUT EARTH MOVING AWAY**
    - JUST PASSED OPPOSITION IN AUGUST
- **SOLAR RANGE REMAINS HIGH**
  - **THE POWER SYSTEM HAS HANDLED THE RANGE WELL**
  - **COMM PERIODS ARE STILL LIMITED TO 4 HOURS**

CURRENT ACTIVITIES

- INTERSTELLAR PARTICLE COLLECTION PERIOD 2
  - AEROGEL GRID DEPLOYED ON ON 8/5
  - EXPOSED TO THE PARTICLE STREAM UNTIL 12/9
- PLANNING FOR ENCOUNTER TEST AT ANNEFRANK
  - STL TESTING OF THE NAV CAM NUCLEUS TRACKING S/W IN PROGRESS
  - PASSED THE CRITICAL EVENT READINESS REVIEW (9/16)
  - TCM-7A, ANNEFRANK APPROACH, MAY NOT BE REQUIRED

- IPN SUPPORT HAS BEEN GOOD THIS PAST PERIOD
  - SUCCESSFULLY COMPLETED ONE NSP TEST TRACK ON 7/25
  - DSMS NSP PIT SHADOW TRACK PLANNED FOR 9/25
  - PROJECT HAPPY TO SEE PLAN FOR THE Bldg 230 UPS SYSTEM REPLACEMENT

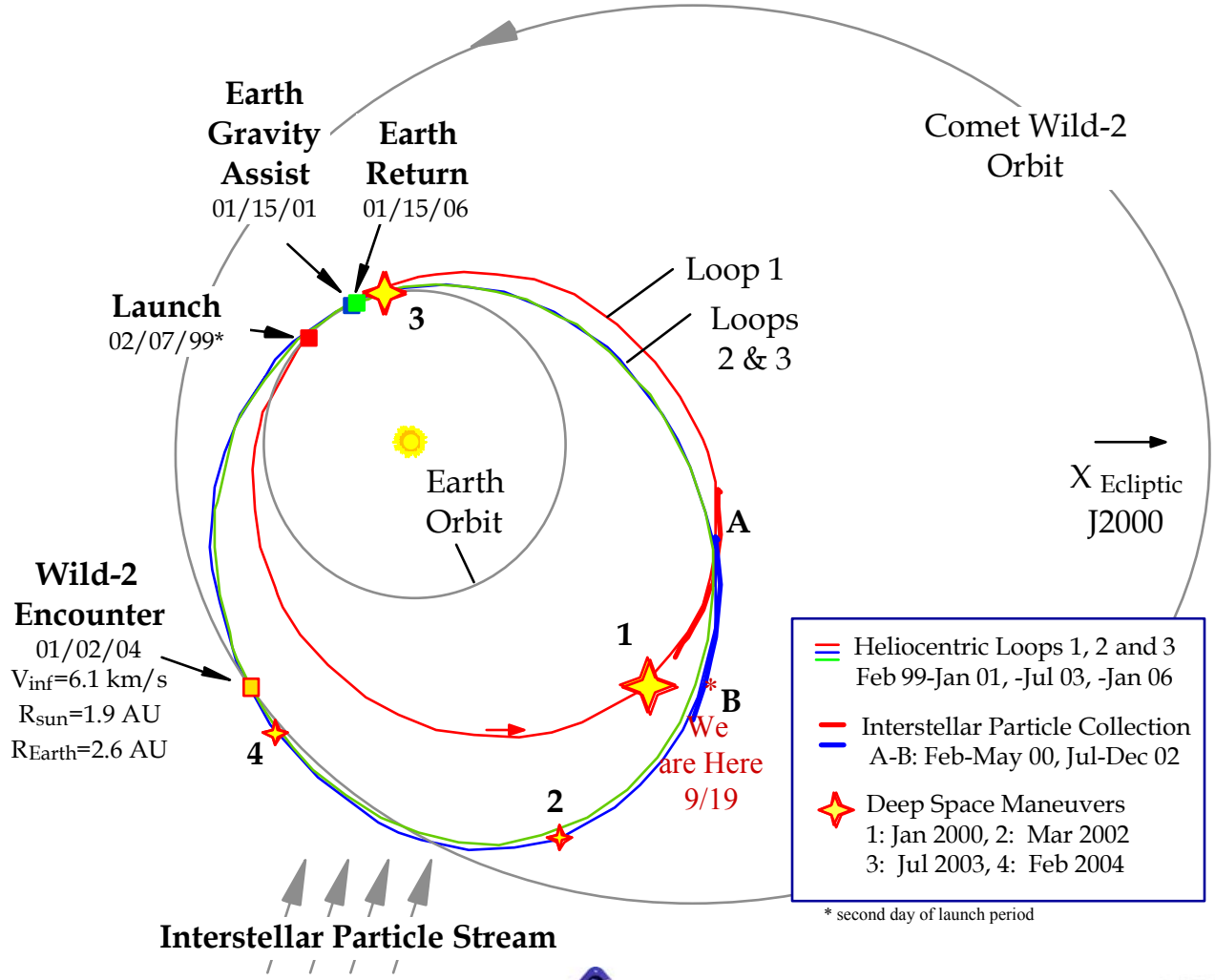
http://stardust.jpl.nasa.gov

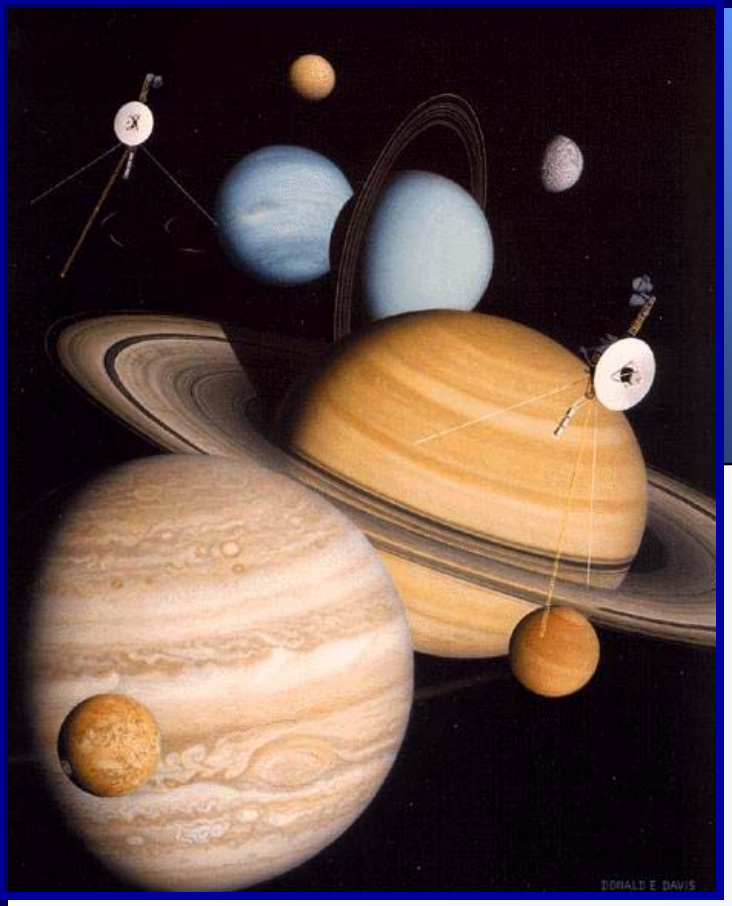
UPCOMING EVENTS

INTERSTELLAR DUST COLLECTION 2
CONTINUES TO DECEMBER 9, 2002

TCM 7A - MOVED TO OCTOBER 9, 2002
MAY NOT BE REQUIRED

ENCOUNTER TEST AT ANNEFRANK
NOVEMBER 2, 2002

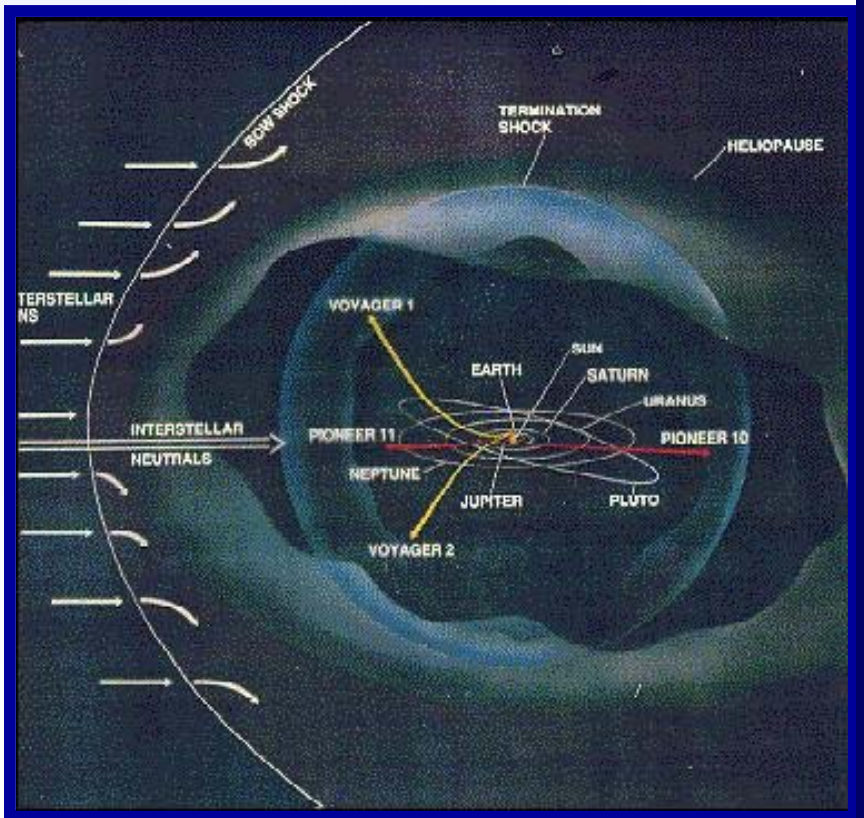

Earth Gravity Assist
01/15/01
Earth Return
01/15/06
Launch
02/07/99*
Comet Wild-2 Orbit
Loop 1
Loops 2 & 3
Earth Orbit
X Ecliptic J2000
Wild-2 Encounter
01/02/04
Vinf=6.1 km/s
Rsun=1.9 AU
REarth=2.6 AU
A
*B
We are Here 9/19
1
2
3
4
Interstellar Particle Stream
Heliocentric Loops 1, 2 and 3
Feb 99-Jan 01, -Jul 03, -Jan 06
Interstellar Particle Collection
A-B: Feb-May 00, Jul-Dec 02
Deep Space Maneuvers
1: Jan 2000, 2: Mar 2002
3: Jul 2003, 4: Feb 2004
* second day of launch period



VOYAGER

FLIGHT OPERATIONS

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE



Jefferson Hall

September 19, 2002

NASA Jet Propulsion Laboratory

http://voyager.jpl.nasa.gov

VOYAGER

FLIGHT OPERATIONS

JPL

JPL NASA Jupiter Saturn Uranus Neptune and Beyond... VOYAGER I & II

FLIGHT SYSTEM STATUS

MISSION STATUS

VOYAGER 1

* HELIOCENTRIC DISTANCE – 85.9 AU, RTLT – 23h53m18s
* SPACECRAFT REMAINS HEALTHY
* MAJOR ACTIVITY: PMPCALs, ASCAL, & MAGROLs

VOYAGER 2

* HELIOCENTRIC DISTANCE – 68.2 AU, RTLT – 18h49m00s
* SPACECRAFT REMAINS HEALTHY
* MAJOR ACTIVITY: PMPCALs, DTR PLAYBACKS, ASCAL, MAGROL

VOYAGER

FLIGHT OPERATIONS

JPL

GROUND SYSTEM STATUS

(July 13, 2002 - Sept. 13, 2002)

- DSN - OVERALL SUPPORT – GOOD

- Voyager 1: On 7/23 [DOY 204], the uplink of the command loss timer reset command was delayed one hour due a NMCFS Server problem at SPC60 [DR 100896].
- Others problems include antenna ACS problems [DR G101430, DR G101464], power outage[DR C101530], procedural problem [DR C101554], Complex supervisor problem [DR G101518], EL Encoder problem [DR G101555], and rain [DR M100998].
- Voyager 2: On 7/16 [DOY 197], Commands radiated from DSS-43 were not received by the spacecraft due to a ground problem [DR N100540].
- Others problems include a power outage [DR C101521] and rain [DR C101524].
- 11 schedule changes were made during this period in support of the CONTOUR mission.

VOYAGER

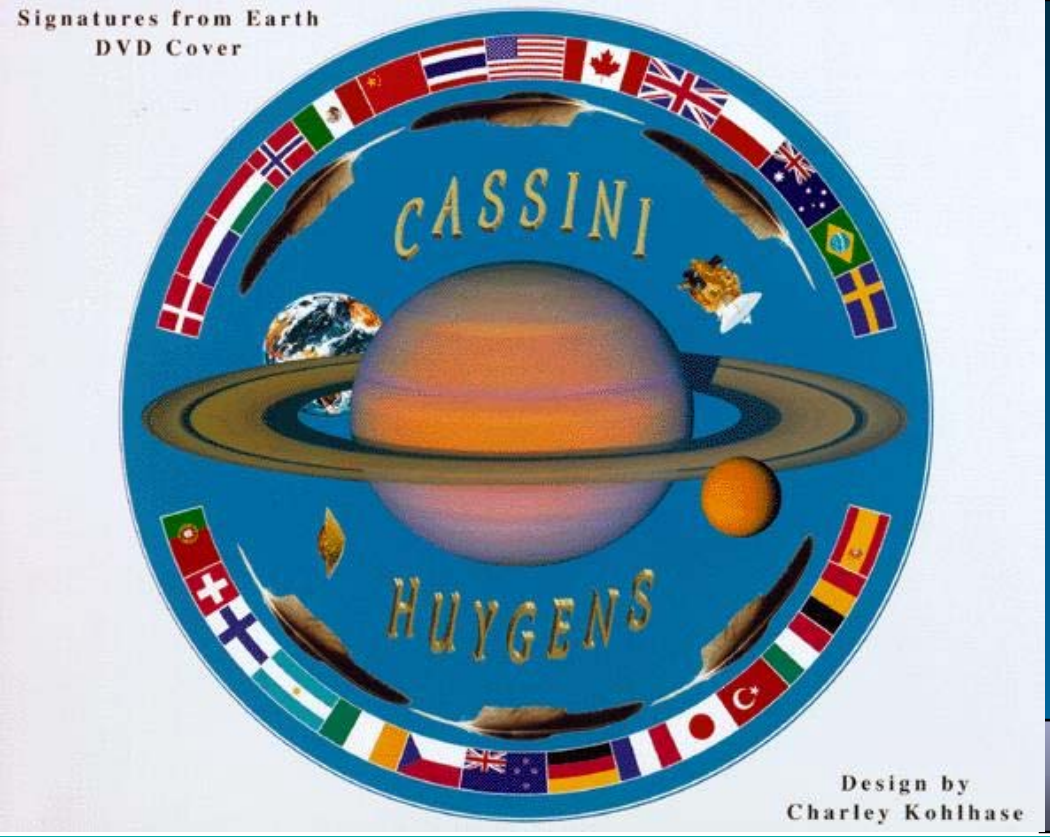
FLIGHT OPERATIONS

JPL

TOTAL SUPPORT TIME, OUTAGE TIME, % OF OUTAGE TIME

S/C	SCHED. SUPPORT	ACTUAL SUPPORT	70M TIME	SIGNIFICANT OUTAGE TIME	% OF OUTAGE TIME
31	948.7	918.3	236.6	7.2 (4.8)	1.3%
32	713.1	708.6	285.1	1.9 (2.7)	0.7%

VOYAGER HOMEPAGE - http://voyager,jpl.nasa.gov



CASSINI

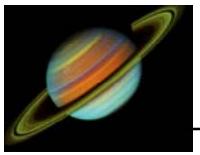
http://saturn.jpl.nasa.gov/cassini/index.shtml

Joint Users Resource Allocation Planning (JURAP) Committee Meeting

Dave Doody

September 19, 2002

NASA / Jet Propulsion Laboratory



Cassini

- In Space Science Subphase
  - Space Science observations ongoing, S/C frequently off Eartht between DSN playback tracks
    - RPWS “hearing” Saturn loud & clear
    - Huygens Probe checkout #10 completed, prelim indications show a healthy spacecraft
    - RSR helped look for CONTOUR
- Operations
  - Daily ops going well, excellent DSN support; excellent NOPE support
  - ECC exercise conducted successfully DOY 234 (22 August ‘02)
  - Tour advanced science planning continues. Planning for 5% of tour is done!
  - Minor S/C instrument adjustments, cals, and anomalies being worked near real time
  - DSS25 Ka-band TXR health report expected DOY 309 (5 October ‘02)
  - SFOF Clean power failed early August, generators used extensively during repairs. Ok now.
  - Dropping NISN Voice & data line service to Distributed Ops sites
  - AACS & CDS Flight S/W installation & checkout require additional DSN support (Feb-Apr 2003)
    - Details in today’s special report by Mission Planning Manager Dave Seal
- NSP
  - TRK shadow passes being conducted, several more coming so Nav can verify data
  - TLM tests to be worked in DTF21 to check out BVR + TLM s/s with HI, LOW, NO subcarrier
  - RS test(s) to be scheduled
  - FTS caused some NSP CMD problems DOY 245
  - PIT scheduled